AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1. (Currently Amended) A method of monitoring ~~a chemical~~ an enzymatic reaction in which an enzyme converts substance A ~~is converted~~ to product B, said method comprising:

mixing ~~incubating~~ substance A with ~~in the presence of~~ a signaling aptamer to form a mixture, the signaling aptamer having ~~that has~~ a first affinity for substance A and a second, different affinity for product B,

determining the amplitude of the signal released from the signaling aptamer before adding the enzyme to the mixture ~~based on the affinity of the aptamer for substance A~~,

adding the enzyme to the mixture, and

~~monitoring~~ determining changes in the amplitude of the signal at multiple time points after addition of the enzyme,

wherein changes in the amplitude of the signal indicate the conversion levels of substance A to product B at the multiple time points ~~for a change in amplitude of the signal wherein a change in amplitude of the signal is indicative of a modification of substance A whereby binding of the signaling aptamer to substance A is disrupted.~~.

2. (Cancelled)

3. (Original) A method according to claim 1, wherein an increase in the amplitude of the signal is indicative of binding of the aptamer to product B.

4. (Withdrawn) A method according to claim 1, wherein a decrease in the amplitude of the signal is indicative of binding of the aptamer to product B.

5. (Currently Amended) A method according to claim 1, wherein the signaling aptamer has ~~a~~fluorophore a fluorophore and a quencher in proximity.

6. (Original) A method according to claim 5, wherein the signaling aptamer is a signaling aptamer complex (SAC) comprising an aptamer oligonucleotide and a quencher modified oligonucleotide capable of forming a duplex with the aptamer oligonucleotide in the absence of an aptamer binding target.

7. (Withdrawn and Currently Amended) A method according to claim 1, wherein the ~~chemical~~ enzymatic reaction is addition of a functional group to substance A.

8. (Currently Amended) A method according to claim 1, wherein the ~~chemical~~ enzymatic reaction is removal of a functional group from substance A.

9. (Withdrawn and Currently Amended) A method according to claim 1, wherein the ~~chemical~~ enzymatic is a phosphorylation reaction.

10. (Cancelled)

11. (Currently Amended) A method according to claim [[10]] 1, wherein ~~the substrate~~ substance A is selected from the group consisting of inosine, adenosine, cAMP, AMP, ADP and ATP.

12. (Currently Amended) A method according to claim [[10]] 1, wherein the enzyme is selected from the group consisting of a phosphatase, a deaminase, an adenyl cyclase and a phosphodiesterase.

13. (Currently Amended) A method of detecting the presence of an enzyme capable of converting a substrate to a product in a test sample, said method comprising:

~~incubating~~ mixing the test sample with the substrate [[with]] and a signaling aptamer that has a different ~~affinities~~ affinity for the substrate and the product ~~in the presence of the test sample~~

examining a signal released from the signaling aptamer, and

determining the presence of the enzyme in the test sample based on the intensity of the signal,

wherein a change in the intensity of the signal relative to that in the absence of the test sample indicates presence of the enzyme ~~monitoring for a change in signal, wherein a change in signal intensity indicates enzymatic activity in the test sample~~.

14. (Original) A method according to claim 13, wherein an increase in signal intensity indicates the presence of the enzyme.

15. (Withdrawn) A method according to claim 13, wherein a decrease in signal intensity indicates the presence of the enzyme.

16. (Currently Amended) A method of quantitating an enzyme in a sample, said method comprising

~~incubating~~ mixing the sample with a substrate of the enzyme [[with]] and a signaling aptamer ~~in the presence of the sample~~,

measuring the amplitude of the signal released from the signaling aptamer, ~~generated~~ and

determining the concentration of the enzyme by comparing the amplitude of the signal to a standard curve of the amplitudes of the signal ~~relative to~~ versus the concentrations of the enzyme ~~concentration~~.

17. (Currently Amended) A method of screening a test compound for inhibition of an enzyme that converts a substrate to a product, said method comprising:

~~incubating~~ [[a]] mixing the substrate with the enzyme, the test compound, and a signaling aptamer that has a first affinity for the substrate and a second, different affinity for the product, ~~in the presence of the test compound and the enzyme~~;

measuring the amplitude of the signal released from the signaling aptamer, and

determining whether the test compound is an inhibitor of the enzyme, ~~monitoring for a change in amplitude of the signal, wherein a change in signal is indicative of enzyme activity and~~

wherein no change between the amplitude of the signal and that in the absence of the test compound indicates that the test compound is an inhibitor of the enzyme ~~is indicative of inhibition of the enzyme~~.

18. (Original) A method according to claim 17, wherein the enzyme is selected from the group consisting of a phosphatase, a deaminase, an adenyl cyclase and a phosphodiesterase.

19. (Withdrawn) An enzyme inhibitor identified according to the method of claim 17.

20. (Original) A kit for detecting modification of a substrate, said kit comprising a substrate and a signaling aptamer having an affinity for the substrate, wherein the signaling aptamer has a different affinity for modified substrate.

21. (Original) A kit for screening for enzyme inhibitors, said kit comprising a substrate, an enzyme capable of acting on the substrate to produce a product, and a signaling aptamer having a first affinity for the substrate and a second affinity for the product.